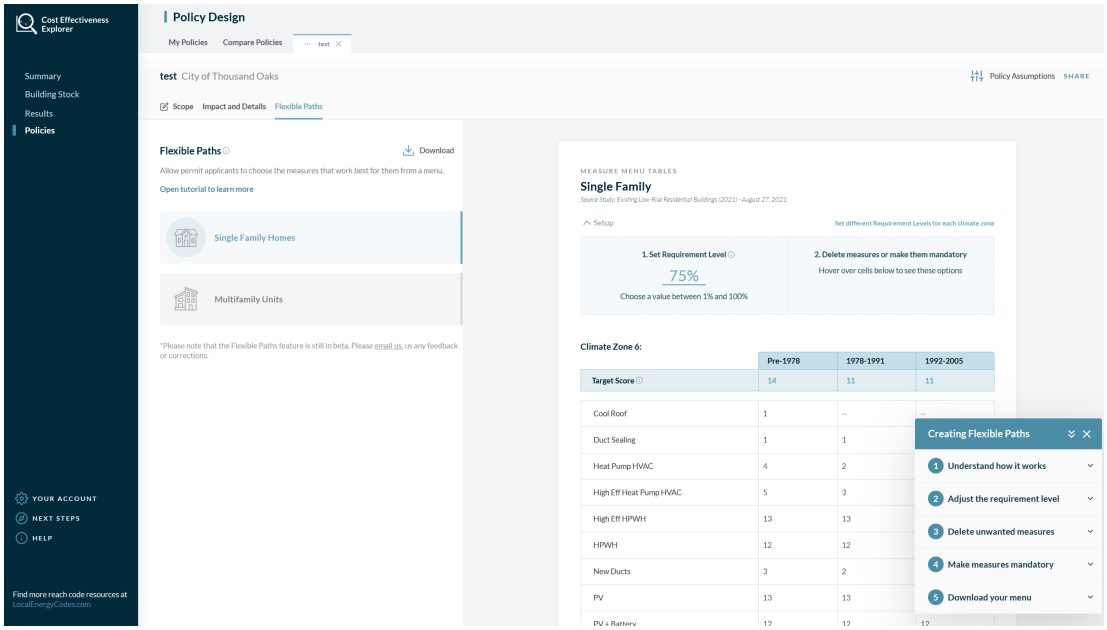
REACH CODE NEWS BRIEF: OCTOBER 2021

COST-EFFECTIVENESS EXPLORER INTRODUCES TOOLS FOR DESIGNING FLEXIBLE COMPLIANCE POLICIES



As jurisdictions throughout the state evaluate strategies to decarbonize existing buildings to reduce greenhouse gas emissions, many are considering “flexible path” approaches for ordinances targeting residential retrofits in their communities. For instance, the City of Chula Vista used a basic version of a flexible path approach in designing its recent residential retrofit ordinance (read more about this here).

These types of ordinances offer the homeowner and their builder flexibility in selecting from a menu of individual measures with points weighted by site energy savings, to meet or exceed a target score and achieve an energy-efficient remodeled home.

Local jurisdictions can adjust how comprehensive the requirements are by adjusting the required target score. The advantages of this approach are that it offers flexible compliance options, places a high value on electrification measures, and is grounded in bill-payer cost-effectiveness.

These approaches can be tricky to design and calibrate, however, due to the numerous variables involved like energy savings, cost-effectiveness, and measure compatibility across a wide variety of existing homes. The statewide reach codes team

tackled this challenge and is debuting new capabilities in its popular Cost-Effectiveness Explorer that have been engineered to simplify the design and development of flexible path approaches.

“I have been working with this new tool to evaluate different measures, and it has saved me quite a bit of time,” notes Palm Springs Sustainability Commission Vice Chair David Freedman. “I can focus on setting specific targets based on building permit values much faster. Overall, it is helping me to create a customized approach to present to the Palm Springs City Council that will aid Palm Springs in achieving its aggressive climate action goals.”

Visitors can begin to evaluate flexible compliance approaches with a single, new “Create Policy” wizard that appears in the Explorer’s Summary page. Once a strawman policy is created, the user can begin to explore flexible path options with step-by-step assistance from the embedded tutorial. For instance, policymakers can experiment with making specific measures mandatory or removing them altogether as options. Once the user is ready to save the draft policy, they can download it along with model ordinance language specifically tailored for the flexible compliance approach.

The new functionality is currently available in the Cost-Effectiveness Explorer in beta form. The statewide team welcomes feedback and corrections.

UPCOMING EVENTS

November

November 3: BayREN Training: Heat Pump Water Heater For Contractors

November 10: Energy Commission Business Meeting

November 10: BayREN Training: How the Energy Code Treats Electrification

November 10: Getting to Zero Forum & NYSERDA: 21st Century Schools: Cleaner & Greener, Session 1

November 17: BayREN Training: Heat Pump Water Heaters for Building Departments

November 30: BayREN Training: Energy Code Refresher



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NEW THIS MONTH!



NOW AVAILABLE! NEW COST-EFFECTIVENESS STUDY FOR LARGE OFFICES

In 2019, the Reach Code Team published nonresidential new construction studies that documented the cost-effectiveness of energy measure packages for Medium Office, Medium Retail, and Small Hotel prototypes. Since then, stakeholders have requested similar analysis for the Large Office new construction prototype. This report is now available on the reach codes website.

The new report documents cost-effective combinations of measures that exceed the minimum state requirements, the 2019 Building Energy Efficiency Standards, effective January 1, 2020, for design in newly constructed buildings. In developing the analysis, the team used a modified version of the DOE building prototype. For instance, the number of above-grade floors were reduced from the DOE prototype from ten to five at the request of jurisdictions to represent their building stock more accurately. The baseline HVAC system includes two natural gas hot water boilers, two chillers and two cooling towers, one built up rooftop unit per floor, and variable air volume (VAV) hot water reheat boxes.

The analysis focused on the following packages:

- Large Office Baseline Package: Mixed-fuel prescriptively built building.

- All-Electric (AE): Including electric appliances that meet federal minimum efficiency criteria, as well as electrical upgrades, such as on-site secondary transformers. All other aspects of the building are prescriptively built.
- All-Electric + Efficiency (AE Eff): All-electric, including efficiency measures.
- All-Electric + Efficiency + Solar PV (AE Eff PV): All-electric, including efficiency measures and a solar PV array.

The Reach Code Team found that electrifying Large Office HVAC and adding efficiency measures is generally cost-effective. The all-electric plus energy efficiency packages are cost-effective in all Climate Zones (CZs) except 1, 2, 5 (except areas served by SoCalGas), 14 (except areas served by SCE), and 16. Adding solar PV makes the efficiency packages cost-effective in all CZs, though do not achieve positive compliance margins in CZs 1 and 16. Reach codes may require all-electric large offices in all CZs except 1 and 16, but must include solar PV requirements in CZs 2, 5 (except areas served by SoCalGas), and 14 (except areas served by SCE).



CITY OF PIEDMONT FOCUSES ON RESIDENTIAL RETROFITS IN ITS FIRST-EVER REACH CODE

The City of Piedmont, once known as ‘The City of Millionaires,’ today is a lively community located in the Oakland Hills overlooking the San Francisco Bay. Home to 11,000 residents, the City is highly residential with large, established single-family homes on quiet, tree-lined streets. When the City adopted the second version of its

Climate Action Plan in 2018, it set an ambitious goal of reducing its greenhouse gas emissions by 40% by 2030 and culminating in an 80% reduction by 2050. Because the City and its residents already receive most of its electricity from renewable resources, the sustainability team began to seek out other approaches to continue progressing toward the CAP goals.

Given the highly built out state of the City's neighborhoods, as well as the fact that most homes are single-family and of older vintages, City staff began to explore opportunities to advance electrification of these existing homes. The team conducted extensive outreach with City residents over the course of several weeks in early 2020. A town hall forum in late January was followed by four additional workshops during which residents, business owners, contractors and other stakeholders provided feedback. Additionally, City staff conducted a public survey, gathering responses via online forms. All the feedback was incorporated into the policy development process. Once proposed ordinances were developed, City staff engaged an opinion research firm to conduct a random-sample public survey in June 2020 to assess community opinion. This revealed strong support for the proposed measures. A second public survey conducted in late 2020 confirmed the same level of support.

Speaking of the widespread public support for the measures, Sustainability Manager Alyssa Dykman said, "We were committed to capturing a comprehensive reflection of perspectives from the community and were gratified at the strong support, consistently ranging around two-thirds of survey participants."

The Piedmont City Council adopted the proposed measures on February 1, 2021. These measures included:

- Newly constructed low-rise residential buildings, including new detached accessory dwelling units (ADUs), must use all electric building appliances.
- Projects proposing an entire new upper level on a low-rise residential building, or that increase a low-rise residential building's total roof area by 30% or more, are required to install solar panels on the roof.
- A renovation project on a low-rise residential building that costs $25,000 or more, requires the applicant to choose one item from a menu of energy efficient insulation or heating system electrification improvements. A renovation project that costs $100,000 or more requires inclusion of two items.
- Electrical panel upgrades must include capacity in the panel to accommodate future electrification of all appliances in the residence.
- Kitchen or laundry area renovations must include electrical outlets for future appliance installation.

- At point of listing for sale, a report from a Home Energy Audit or Home Energy Score must be provided to potential buyers and submitted to the City unless the home was constructed in the past 10 years.

The City maintains a robust webpage of resources for residents and contractors, including FAQs, checklists and information about rebates and other incentives.



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OTHER REACH CODE NEWS BRIEFS

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Archives